WHAT IS CLAIMED IS:

1) A suspended, articulated front axle for a work vehicle having a central body and two front axle shafts, each axle shaft being associated with a respective front wheel, the axle shafts extending laterally from the central body, each axle shaft including:

an inner shaft portion centered under the central body;

at least one intermediate portion having a longitudinal axis of symmetry that slopes by a sweep-back angle with respect to a line perpendicular to a longitudinal axis of symmetry of the vehicle, wherein the sweep-back angle is such that an outer end of the intermediate portion is located further back with respect to an inner end of the intermediate portion in a forward travelling direction of the work vehicle.

2) The front axle according to claim 1 wherein the sweep-back angle produces a twofold reduction in turning radius by:

reducing a wheelbase of the vehicle from a first value to a second value so that a turning radius is reduced from a first value to a second value; and

enabling a turning angle of the inner wheel to increase from a first value to a second value whereby the turning radius is further reduced from the second value to a third value; the first turning angle value being upwardly limited by a first transmission joint between each wheel and its associated axle shaft.

3) The front axle according to claim 2 wherein the maximum value of the sweep-back angle equals $\alpha''/2$, wherein α'' represents the difference in turning angle

between the inner and outer front wheel of the vehicle when a turn is effected.

4) The front axle according to claim 3 wherein the intermediate portion sloping by the sweep-back angle is an intermediate shaft of the axle shaft.

5) The front axle according to claim 4 wherein the intermediate shaft is connected at one end to an inner shaft by a second joint and at the other end to an outer shaft by the first transmission joint.

6) The front axle according to claim 5, wherein the joints are universal joints.

7) A front suspension comprising a bottom arm and a substantially parallel top arm, both in the form of a double fork and connected at their outer ends to a cup-shaped, articulated support, a central body and two front axle shafts, each axle shaft being associated with a respective front wheel, the axle shafts extending laterally from the central body, each axle shaft including:

an inner shaft portion centered under the central body;

at least one intermediate portion having a longitudinal axis of symmetry that slopes by a sweep-back angle with respect to a line perpendicular to a longitudinal axis of symmetry of the vehicle, wherein the sweep-back angle is such that an outer end of the intermediate portion is located further back with respect to an inner end of the intermediate portion in a forward travelling direction of the work vehicle and the suspension is swept back at the same sweep-back angle as each axle shaft.

8) The front axle according to claim 7 wherein the articulated support is adapted to house a hub carrier supporting a hub, the hub carrier being hingeably connected to the articulated support by means of aligned hinges.

9) The front axle according to claim 8, wherein the bottom and top arm of the suspension are connected at their inner ends to a lateral side of a front support member provided in front of the engine of the vehicle and forming part of the vehicle chassis, wherein the front support member supports the central body.

10) The front axle according to claim 9, wherein the bottom arm is hingeably connected to one end of a fluid actuator, the other end being connected to the chassis of the vehicle, for varying the stiffness of the suspension as a whole.

11) The front axle according to claim 10 wherein each axle shaft is positioned substantially centrally between the bottom and top arms.

12) A front suspension for a vehicle comprising:
a bottom arm and a telescopic top arm, the top arm extending by an angle relative to the bottom arm, and both the bottom arm and top arm being connected to a front support member provided in front of an engine of the vehicle.

13) The front axle accor ding to claim 12 wherein the suspension is of a McPherson-type suspension.

14) The front axle according to claim 13, wherein, in order to reduce the risk of collision between a wheel and

the chassis of the vehicle upon effecting a full steering lock, the caster angle of the wheel is chosen such that, upon turning, the wheel approaches the centerline of the vehicle more in a lower area than in an upper area.

15) The front axle according to claim 14 wherein the caster angle is defined as the acute angle between a vertical line and a line through the axis of either the hinges or the telescopic top arm.

16) The front axle according to claim 15, wherein the projection of the line through the axis of either the hinges or the telescopic top arm on a vertical plane perpendicular to the longitudinal center line of the vehicle intersects the ground at a first point which is outwardly offset from a central point of contact of the wheel with the ground wherein the projection of the line forms an acute kingpin angle with a vertical line.

17) The front axle according to claim 16, wherein the first point represents the virtual turning point of a wheel such that, upon turning a wheel, the central point of contact of a wheel with the ground moves away from the longitudinal centerline of the vehicle.

18) The front axle according to claim 17, wherein to increase the distance between the first point and the central point of contact, the wheel is positioned under a camber angle, wherein the camber angle is defined as the acute angle between a center line of the wheel and a vertical line on the ground.

19) The front axle according to claim 18, wherein when increasing camber angle, a top portion of the wheel is moved away from the vehicle chassis.

20) The front axle according to claim 19, wherein each front wheel has a virtual turning point which is outwardly offset from a central point of contact of the wheel with the ground whereby, in the event of either of the front wheels losing traction, a correction is made on the steering wheel to counteract the change in direction produced by the loss in traction.

21) The front axle according to claim 20, wherein the loss in traction is converted into a signal on the steering wheel, such as to induce manual user correction of the steering direction of the vehicle.

22) The front axle according to claim 20, wherein the loss in traction is converted into a signal on the steering wheel, such as to induce automatic correction of the steering direction of the vehicle.